Message

From: Nedland, Thomas S - DNR [Thomas.Nedland@wisconsin.gov]
Sent: 1/27/2021 2:48:02 PM
To: Helmuth, Jeffrey A - DNR [Jeffrey.Helmuth@wisconsin.gov]
CC: Weaver, Kerryann [weaver.kerryann@epa.gov]; 'eric.m.norton@usace.army.mil' [eric.m.norton@usace.army.mil]
Subject: Help - Quick Review?
Attachments: Big Hollow_ResponseLetter_012621.pdf

Flag: Follow up

Hi Jeff,

I just IM'd you, but wanted to follow up with an email. Attached is the pdf I mentioned in the IM. Item 4 on page 3 is where we could use your help. Our big question is whether you think it is appropriate to use the Theis Method to calculate a drawdown, if there was not necessarily field data used to populate the parameters (used well log and reported pumping rate info instead).

Also just looking for your general knowledge/opinion – Do you expect that a high capacity well near Spring Green would only generate a 0.1 foot drawdown within 500 feet? I know there are a lot of variables to consider, but just looking for a gut reaction.

I've tried to suss out some of the information from a 400+ page document that may be useful to you. Here is some of the information I've pulled from that larger document:

- The Theis method was used to simulate pumping during the 4-month irrigation season when the irrigation well at the site typically operates. Existing conditions simulations used the average pumping rate from 2010 – 2018 of 179 gpm. Proposed conditions simulations used 25% of this pumping rate (45 gpm) because ¾ of the irrigated area will be removed from production for the mitigation project. Water table drawdown due to pumping was evaluated at distances from the well of 500 ft (within the mitigation site) and 1500 ft (Big Hollow Rd.) at the end of the 4-month irrigation season. With the proposed reduction in pumping, there will be less water table drawdown. For proposed conditions, the water table is estimated to be 0.1 ft higher 500 ft and 0.04 ft at 1500 ft (Appendix B, Figures B16-B19). Note that the water table elevation will still be lower than it would be if the irrigation well were shut down completely.

- Here is the predicted existing drawdown of the well, currently (see below)

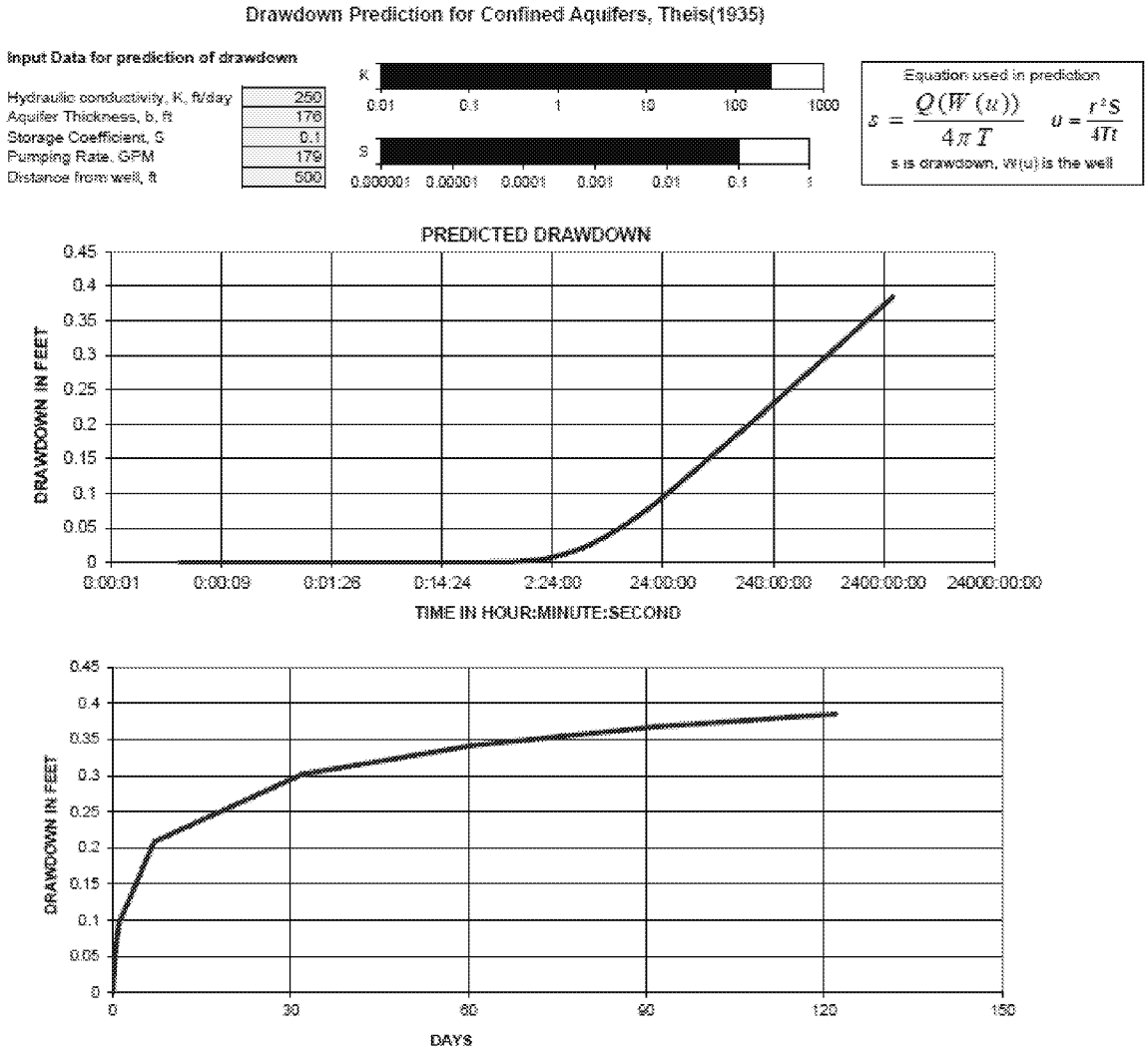

Figure B16. Theis drawdown prediction for the on-site irrigation well for existing conditions at a distance of 500 ft (0.38 ft at end of 4-month growing season).

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- Here is the predicted drawdown if 75% of the area is removed from irrigation (see below)

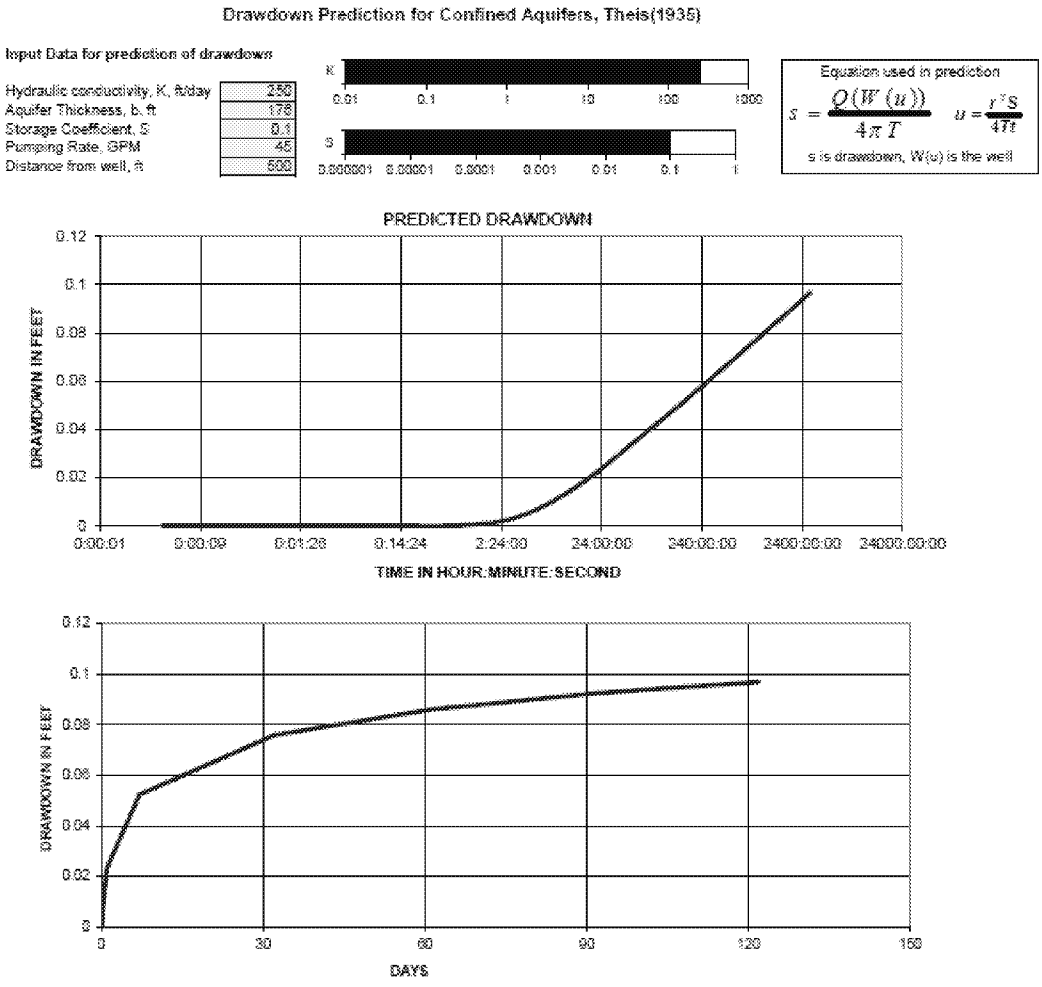

Figure B17. Theis drawdown prediction for the on-site irrigation well for proposed conditions at a distance of 500 ft (0.1 ft at end of 4-month growing season).

Any help you could provide would be greatly appreciated.

Please give me a call if you would like to discuss.

Thanks,

Tom

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